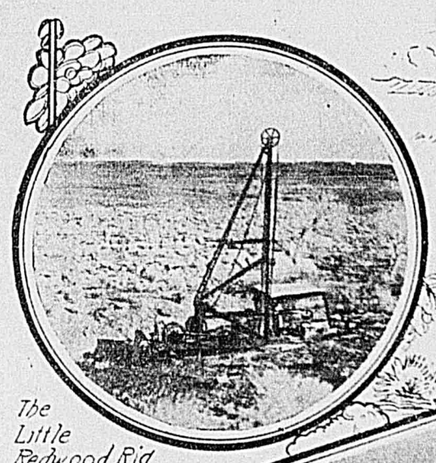
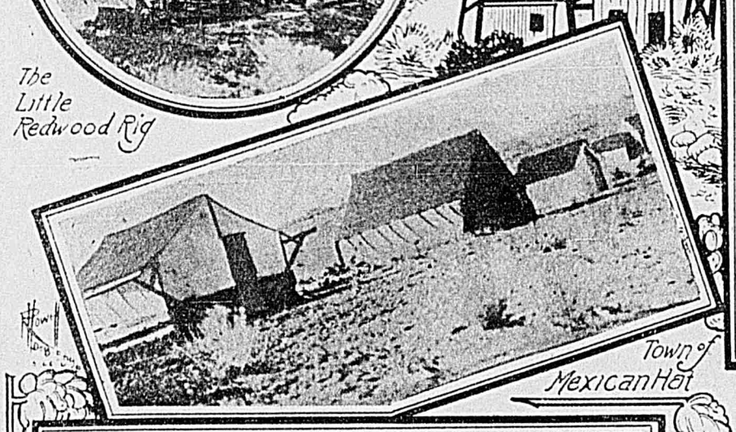
San Juan Oil Fields, Southern Utah's Latest Industry

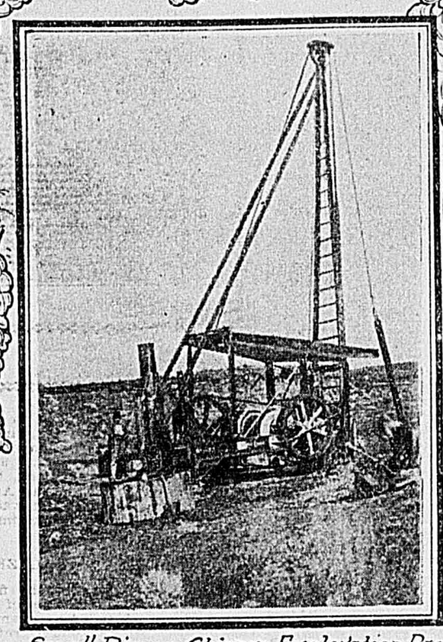


The Little Redwood Rig



Town of Mexican Hat

Raplee's Camp on the San Juan



Small Rig on Chicago Exploration Prop

Melvin Dempsey, the first Man to find Oil in Quanity in Utah

Pouring out first oil found in Quantity PHOTO BY CHAS GOODMAN BLUFF, UTAH

The Arcola, Utah's first Commercial Well

Spencer Well, on London & San Juan Ground

FEW have realized and apparently few have cared about the abundant resources of Utah, but those few are now molding into shape one of the great coming industries of this state—oil. Few people realize the scope of this new business which now seems certain to be one of the big things of the state. Shrewd, cold, calculating engineers, who have passed the stage of enthusiasm and are more inclined to discredit rather than credit, declare that Utah is to be one of the big oil states of the Union or the sure signs of the science fail. As yet the industry has not been proven, but enough has been done to show that vast quantities of oil exist in Utah and that the next five years will show a giant improvement.

Pioneers of the oil districts of Utah are what are known as the San Juan fields, home of the first paying well, where a quarter of a million of dollars has been spent in drilling this year, where more than 100 men are now employed, where three new townsites are laid out, where 25 drills are in the field and four more are on the way in, where a number of refineries will shortly be built and where there is promise of one of the largest fields of high grade oil. Waterworks are being put in at the Mexican Hat townsite, a telephone line will be in within 60 days. Mexican Hat with its seven tent nouses, has a restaurant, store and bunk house; there are more than a dozen wells, which if properly cared for, cased off and shot would probably produce from 3,000 to 5,000 barrels of oil a day that is now bringing $2.75 a barrel in the crude state in the field. This in brief is San Juan, the place with the ear marks of being a great field; the place that will grow like a mushroom as soon as more care is taken in bringing in the wells in a workmanlike manner.

San Juan county is most like a big ungainly school boy, who strode in and took his seat. As he said but little or no attention was paid him, until he asserted himself and showed himself a wonder. San Juan has been the most neglected of counties on account of its size and distance from railroad facilities. San Juan county is in the extreme southeastern part of Utah, and the oil fields are 25 miles west of Bluff in that county and about 300 miles from Salt Lake City.

EXTENT OF FIELDS.

As near as can be determined at present the San Juan oil fields are 20 miles long and probably 12 miles wide, although several engineers are of the opinion that as development proceeds the width of the area will be double what it now is.

Remoteness from civilization has been the one retarding hand that has long clutched at the field. If any automobile had reached the spot years ago it would be fully developed now. But the withheld hand of assistance has its own compensation and those who are entering the field are reaping a new harvest that could not have been obtained in times gone by. The distance from the railroad has caused high prices. Freight is taken into the field at the rate of 3 cents a pound. Oats cost 4½ cents a pound in the field and a ton of hay costs just $60. Other things are in proportion. One grade of condensed milk sells for 20 cents a can, while the cheapest come at two cans for a quarter. Freighters are hauling continually, yet it is impossible to keep the field supplied with horse feed. Eggs are a priceless luxury.

There are three ways of reaching the fields. They are by Thompson's Springs, Utah, leaving the Rio Grande Western at that point. This route entails traveling about 175 miles. Leaving Thompson's at 7 o'clock in the morning the traveler reaches Moab, 55 miles away, late in the afternoon. Next morning he arises at 3:30 o'clock for a stage ride to Monticello, 65 miles further. The stages thus far run every day. From Monticello to Bluff, 60 miles, the stage operates every other day. Leaving Monticello at 5:30 o'clock in the morning one arrives at Bluff about 6 o'clock in the evening of the third day. A new stage line has just been put in to operate from Bluff to the oil fields, 25 miles, three times a week. The stage fare from Thompson's to Bluff amounts to $14 one way.

STAGE TRIPS.

From Dolores, Col., a stage runs every day, reaching Bluff on the second day. The distance from the Rio Grande Southern railroad over this road is 115 miles. The next nearest railroad point is Gallup, New Mexico, on the Santa Fe railroad, which is 140 miles south of the oil fields. At any one of these stations livery outfits can be secured at $5 a day.

The Rio Grande railroad and the Santa Fe railroad have both made surveys through the fields, with prospects of a railroad at an early date. A preliminary survey for a pipe line has also been run through to Gallup. Any one of these projects may be expected to start any time.

San Juan county and the state have during the year put in a bridge across the San Juan river at Goodrich. This connects with the road to Gallup and is the only bridge crossing the stream for 200 miles. It is reported that the best wagon road into the district can be made over this route and that it can be shortened up by 15 miles. This road it is said will permit of the use of the wide-tired auto truck. This it is declared could haul freight into the district at a less cost than could be done by train. On this road it is said that the machines could haul 10 tons and make eight miles an hour.

PROPOSED PIPE LINE.

Although there is already some agitation toward starting a pipe line from the field it will undoubtedly come to Salt Lake City which would afford an excellent distributing point. It is estimated that to put a pipe line into Salt Lake would cost in the neighborhood of $2,500,000 although the pipe itself is placed at $600,000. It is said that a six-inch pipe line will carry four times as much as a 10-inch pipe filled with California oil. This is due to the Utah oil being of a very light character.

Almost any elevation that could be desired can be secured on the Blue mountains about 40 miles north of the oil fields. It is believed that the oil can be made to run by gravity from the Blue mountains to Salt Lake. This would mean the building of a number of refineries in the city as well and would also mean an avenue for the opening up of future oil fields in Green River, Little Grand, Moab, and Emery and Wayne counties.

Oil seeps are found along the banks of the San Juan river for many miles each side of the present field. The field practically begins at Comb wash, where there is a precipitous descent of several hundred feet. From the bottom of the wash the land gradually slopes up on what is believed to be the first anticline on entering the field. This is the eastern edge. The western boundary at present is John's canyon, but it seems more than probable that the western boundary will be greatly extended within a short time and take in Grand gulch and a strip of country that will make the width of the territory better than 25 miles.

SOUTHERN LIMIT.

The extreme southern limit now is the San Juan river, where most of the development work has been centered. The extreme northern end of the field shows another sand in addition to the eight shown in the southern part of the district. This sand in some places shows a discovery at 60 feet. The northern end of the field may prove to be the most productive, although work has not progressed far enough to tell definitely the best portions of the ground.

South of the river in the reservation it is believed that just as good fields exist, if not better. Some locations were made there before this part of Utah was withdrawn from entry. As the assessment work has been kept up, the property will some day be tested.

One peculiarity of the district is that it is free from freaks or faults. According to James R. Martin, C. H. G., he has been able to find but two intrusions in the entire field. At one place a schist dike breaks abruptly through what must have been a plastic surface and forms Alhambra rock, located south of the river, and which can be seen from almost any point in the field. This intrusion has not fractured the formation, and 12 inches from the contact it is impossible to determine where the contact is, so exact has nature been in this piece of work. There is also an intrusive dike running several hundred feet north and south on section 7, township 41, range 19. This dike is also of the same character and apparently has had but little effect on the formation.

CENTER OF FIELD.

The center of the field at present is what is known as the Goodrich basin in honor of E. L. Goodrich, the first man to sink a well in the district. It is also known as the Mexican Hat basin, as the famous Mexican Hat rock, which is seen in the back ground of the Monumental rig picture, is located there. This natural freak looks like a Mexican hat in the distance. The big brim is 72 feet one way and 64 feet another. This rock is over 10 feet thick and is balanced on a rock that measures four feet, eight inches across. It is said that this base is so soft that the rock could be toppled over by spraying it with a garden hose for 10 minutes.

All the formations of the field seem to come to a common center at the base of a dome-like up-lift known to geologists as a quaquaversal dome. This is said to be the largest known to geologists, and is about 12 miles long and six miles wide. This is cut by the river so that the great folds in the formation show out distinctly for many miles. This eroded section is one of the great sights of the country.

According to geologists this dome was the result of an enormous uplift, which although terrible in its power, was not sufficient to force its way up through the formation. The great folds are unlike any other formation in the state and it hardly appears possible for them to have been so twisted and not broken. This dome is believed to have been the great anticline of the district and from it branch the other anticlines. The theory of oil is that it is forced upwards by gas and water pressure so that the anticline is the logical location of the oil.

ONE WELL SHOT.

Lack of experience has been a great drawback in the San Juan field. One might say that dozens of wells could have been brought in and made of commercial value if proper precautions had been taken. The Arcola well is the only one that has been shot thus far and it was the third well to be sunk in the district. The Oil company of San Juan has at least four wells which if shot would be good producers, it is believed.

Unlike most fields nature has cut the formation of the San Juan oil fields so that it stands out like an open book. Erosion has been gigantically busy and the turgid, turbulent San Juan river, with its reddish silt water, has cut the field to a depth of over 1,000 feet. Along its shores are found numerous oil seeps, in some places the sands are permeated with oil for a thickness of 50 feet.

On the banks of the river below the townsite of Goodrich, where the new bridge crosses the stream, is where the first oil seeps were found. Here what is known as the Goodrich sands are exposed for a depth of 50 feet. It was in these sands that the first oil in quantity was found.

LOG AT SPENCER WELL.

Sufficient work has not been done in the oil field to fully determine conditions, but the log of the Spencer well on the London & San Juan property will be sufficient to give a fair idea of the formation. The well was started on top of the Goodrich oil sands. The log is as follows: 50 feet, Goodrich sands; 30 feet, red lime; 20 feet, sand; 88 feet of red lime; 75 feet blue lime; 54 feet fossil lime; 36 feet shalé and fossil lime, where it was necessary to case off the water; 2 feet white sand; 33 feet blue sand; 14 feet shale; 12 feet blue lime; 6 feet red lime; 12 feet blue lime; 9 feet fossil lime; 3 feet fossil lime, shale and oil; 11 feet oil sand; 5 feet shale; 4 feet oil sand; 4 feet blue shale; 8 feet white lime; 11 feet blue lime; 4 feet sand; 13 feet gray lime; 5 feet of sand, followed by 30 feet of well saturated oil sands. This is the bottom of the well, which is 546 feet deep, where the tools are now lost. It is believed that as soon as the tools are removed and the well shot it will be one of the largest in the district.

As far as known there are eight sands in the field which will give a total depth of 300 feet of oil sands. Besides this there is a ninth sand that is being found in the north end of the field. T. G. Brice, who sunk the big Arcola well, says in speaking of the various sands found in the southern part of the field:

"The first sand encountered is the Baby sand which varies from 6 to 10 feet. Then closely following this comes the Goodrich sand, which is from 20 to 50 feet thick. Another sand then comes in which is sometimes 25 feet thick. The next is the Mendenhall sand, which differs from all the others in that it is from 60 to 70 feet thick and is streaked with lime. These streaks cut through, in various places. Following the Mendenhall sand is another that averages about 18 feet and it is in this sand that the Arcola well is made. Then comes another sand of various thickness from 12 to 15 feet, and a small one, followed by the Hunaker sands, which brings up the total exposure of sands cut by the river and what have been found in the various wells to a total of 300 feet."

POSSIBLE PRODUCTION.

In speaking of the production of the San Juan oil fields, James R. Martin says:

"I have been personally familiar with most of the fields in California for many years, and after some eight months of careful study of the conditions and developments in the San Juan oil field I do not hesitate to say that I consider it the greatest prospective oil field I have ever seen or know anything about. In one little field in Los Angeles we have a record of more than 100,000 barrels produced to the acre. The oil sand in that field is only 125 feet thick. We have about three times that amount in the San Juan oil field, and when you consider that the San Juan product should give much greater extraction, owing to its much lighter quality, you can readily see that the ultimate production will be enormous. It has been demonstrated that the saturated oil sands will yield upwards of 10 per cent of their volume in oil. Taking this as a basis and figuring the cubic contents of one acre with a known depth of 300 feet of oil sand, we have 43,560 square feet in an acre by 300 feet, depth of the oil sand, equals 13,068,000 cubic feet of oil sand under each acre. Ten per cent of this equals 1,306,800 cubic feet of oil under each acre. Multiply this by seven and a half, the number of gallons in a cubic foot, and you have 9,801,000 gallons, divided by 42, the number of gallons in a barrel, and you have 233,357 barrels of production for each acre. These figures are conservative and will give you some idea of the enormous value of such oil lands."

PARAFFINE IN CHUNKS.

Persons who have been down the San Juan river canyon in a boat declared that in many places the paraffine can be found in chunks where the oil has evaporated. At the Honaker trail the greatest seep from the Honaker sands, or lowest known sands is found. Here a little over a barrel of oil a day seeps out, running probably as high as three or four barrels on hot summer days, and this has been going on for centuries.

Just how many wells in the district could be productive is hard to say, as tales, more or less inflated, are told. There is no doubt as to at least 10 wells in the district being able to furnish a good supply of oil. Of course it would be necessary to case them and have them shot as the oil sands are not really a sand but a very porous lime. There is no caving and in places drilling is particularly hard.

There are several drilling outfits in the field doing contract work. W. P. Dancer of Bluff has a small rig in the field and is contemplating putting in a large Keystone rig. The Globe Well Drilling company of Reno has just entered the field with a good rig capable of 2,500 feet. J. R. Nash, the field manager of the company has had a varied experience in California and several other fields. The company has a contract for a 1,000-foot well on Redwood ground, a well on the Pacific San Juan ground and also on the Old Gibraltar.

WAGES IN FIELD.

With the advent of the Globe company prices have been cut and are now lower than $5 a foot for drilling. Wages in the field run from $2 to $8 a day, first class drillers getting from $5 to $8 a day. Most of the machines in the field are using crude oil for fuel, while there are several electro-gasoline engines using the crude oil direct on the machines. All tools are sharpened by oil burners.

The forges are made by stone lining a foot hole in the ground to the depth of about two feet. A large sand stone is then placed in the hole and a three-quarters inch pipe run from a barrel of crude oil to a point in the hole where it can be sprayed on the sand stone. A blower is attached to the engine and the pipe is extended into the hole so that a stream of air moves over the sand stone. As the top of the hole is covered up and a small apparture left for the admittance of tools a very heavy heat can be secured. In using oil as fuel the same practise is in vogue. The engines are started by wood until the boilers are warmed, when the oil is turned in and blower set in action.

The rush of assessment work has prevented a great deal of deep drilling in the field and with but one exception portable rigs are used. This exception is the standard rig operated by the Norwood and Bluff City oil company in John's canyon on the extreme western part of the field. This is known as the Galloway well. L. W. Galloway of Norwood, Colo., is in charge.

USES TOWER.

This well is the only one operating with a tower and is the deepest in the district. L. W. Galloway is determined to catch the Honaker sands. The camp is one of the best situated in the district and a fine stream of water comes down the canyon. There is also plenty of feed for the stock. The well on December 1, was well down toward the 1,600-foot level, making about four feet a day.

The company pierced the Goodrich sands early in the drilling and again at the 1,170 level, ran through a good oil bearing sand. The Goodrich sand was about six feet thick and the other much thicker. Mr. Galloway is of the opinion that if either one of the sands were shot it would make an excellent well. It is his intention, as he now has the sands cased off, to proceed to the Honaker sand and then shoot each sand on the way up.

There is now a fine flow of gas from the well and each night the camp is lighted up by a funnel-shaped pipe being placed over the well and the gas run into a smaller hole, where it is set on fire. This lights up the entire canyon.

The Aztec Oil company has a No. 25 Keystone rig which has just been set in action. The hole is now down close to 300 feet. At a depth of 210 feet the company has a slight showing of oil. This is the first hole to be sunk by the company. This company will shortly take over the Olympic property.

AT THE NAVAJO.

At the Navajo Oil company property, which is now the furthest north in the field, a No. 5 Columbia is being worked. The well is being sunk under the direction of Feld Manager J. C. Rupp. This company has passed through five sands, getting the Goodrich sands at 225 feet. The sands were 39 feet thick, but Mr. Rupp declares there was not sufficient saturation to make a good well. At 1,075 feet a sulphur water was encountered which at Mexican Hat has been found above the oil sands. The well is down close to 1,200 feet.

The Monumental Oil company has an excellent showing of oil in its well now being sunk near Mexican Hat. Manager W. A. Jackson has cased this sand off and is continuing on down to the lower sands.

The San Francisco-San Juan Oil company, which is one of the Col. A. C. Ellis interests has struck quite a productive oil sand, which it is believed will make a good oil well. This will probably be the next well to be brought in in the district.

Another place where a well is expected shortly is at the Chicago Exploration property in the southeast corner of section 23, township 41, where a No. 28 Star rig is in operation. The hole was down close to 800 feet on Dec. 1 and good progress was being made. The company is putting down an eight and a quarter inch hole, which has been dry all the way. The work was started on the top of the Goodrich sands and well up on the anticline. The company has another little rig doing assessment work on Lime creek and it has recently leased the Ogden & San Juan rig. This company is by far the largest holder of ground in the camp.

AT THE ANDERSON.

The Arcola well is the star of the district. It was the second well to be sunk and was done under the supervision of F. V. Bodfish, now of Salt Lake. The Arcola well is in the sand below the Mendenhall sand. It was shot in June of this year and before this was done it did not yield more than five barrels a day, from a four-inch hole. This is the first well to be shot in the district. Its capacity is unknown as it has never been tested. It is now supplying the entire field with fuel, selling from 20 to 25 barrels of oil a day at $2.75 a barrel. This well has already produced 2,000 barrels of oil. Some days as high as 40 barrels of oil are disposed of.

This company is probably receiving $75 a day and this will be doubled as soon as more rigs enter the field.

Three townsites have been laid out in the oil fields, one at Goodrich, another at Mexican Hat, and a third at the Redwood camp. By actual count there were 25 rigs in the field on Dec. 1, and at least four more were on the way in. A large rig was being loaded at Dolores, Colo., for the Pinnacle Oil company.

California people are in the lead in promoting the oil fields, although there are companies there from Colorado, Michigan, Louisiana, Ohio, Pennsylvania and West Virginia. Utah has been far behind in getting in. The Arcola, San Francsco-San Juan and the Oil company of San Juan are the only ones that Utah can lay any claim to.

NUMBER OF WELLS.

It is hard to tell exactly the number of wells that have been sunk in the district. The San Francisco-San Juan and the Oil Company of San Juan have 16 wells. Counting the holes that have been put down for assessment work and otherwise, there are at least 40 in the district, now varying from 50 feet to 1,200 feet. With all the rigs working, some great discoveries will be made during the coming year.

The oil of the district is of an exceptionally high grade. Only one other state beats it, and that is the Wyoming, where the oil is of a slightly higher grade. The San Juan oil is a pure paraffine oil, and an almost ideal refining oil. The percentage of paraffine contained as shown by the analysis, scale and vaseline is 12½ per cent of the crude weight of the oil. The

(Continued on page twenty-one)

Utah Oil Fields During the Past Year

FROM all appearance Utah is destined to become one of the great oil states of the Union.

Greater advancement has been made in this line than most any other industry in the state during the year. It is now estimated that something over $5,000,000 is invested in the oil fields. There are now 47 oil rigs in the state and within the next 60 days at least seven more will be set up in the various fields. The first well to pay dividends was struck during the year and it is making about $75 a day. Oil has been struck in quantity in San Juan county and oil has also been struck in Emery county.

Engineers are of the opinion that oil extends from Uintah county in the northeastern part of the state south through Grand county into San Juan county. It is also in the same belt that cuts through Emery, Wayne, Juab and Washington counties. Although no work has been done, it is probable that Garfield and Kane counties will also be in the oil belt.

In what is known as the Virgin district in Washington county, "Dad" Hastings is the only one who is continuing to drill, although there are 16 rigs in the field. Various opinions exist as to the field, but it is certain it was killed by wild cat tactics and it may be many years before it is definitely decided whether oil in quantity exists there. Mr. Hastings now has a hole down over 1,800 feet and is still continuing operations.

At Mt. Pleasant and at Juab in Juab county two rigs have been at work for some time. They are continuing their quest for oil. At Mt. Pleasant a depth of 1,000 feet has been attained. Several other holes have also been sunk in the district.

THE RANGELY DISTRICT.

The Rangely district, which extends into Utah from Colorado, is a busy section that is little heard of. It is about 65 miles from Vernal, Uintah county. The Emerald Oil company of Vernal is the only Utah company operating in the field.

One rig owned by a company of Canadian Pacific officials is now in operation in Emery county. This machine is set up in Salt wash, 15 miles southeast of Emery. It is reported that several more rigs are to be set up there shortly, as five other companies have taken up land in the vicinity. Thousands of acres of land have been taken up in Emery county in the vicinity of the San Rafael swell and further to the south in Wayne county.

One of the counties that attracted prospectors during the year was Wayne county, where thousands upon thousands of acres of land were located for oil. Around Fruita, Loa, to the south of Blue valley, and on further south into Garfield county, claims have been staked out. N. Levi, a California oil man, has just put in a rig on the edge of the basin near the Henry mountains where there is great promise of oil. The Ipava Oil company, a Rawhide concern, has several thousands of acres of land located in the vicinity of the Orange cliffs, Wayne county, 40 miles below Green River station.

GREEN RIVER FIELD.

At Elgin, which is but a few miles from Green River, Emery county, it is declared there are many indications of an oil field, while at Little Grand, beyond Green River, it is declared that there are oil seeps that have all the ear marks of making a big field. This is by far the closest field to a railroad, being only 10 miles distant. In this field the first oil was struck at 50 feet by persons sinking a well for water. F. M. Bradshaw and N. Levi, well known operators, Samuel Newhouse, Salt Lake, and C. A. Gibbons, Green River, are all heavily interested in this field where they now have a rig.

Considerable excitement has been started in oil in Moab, Grand county. Along the Grand river some three miles from Moab, there has existed for years a heavy flow of gas. Even in the winter time a pipe can be placed in one of the crevices and a flow of combustible gas obtained. When the river froze last winter the gas found its way from the river bed through the ice.

R. B. Merkins, C. A. Robertson, A. M. Rogers, John Clark and a number of Moab people have succeeded in getting Denver capital interested and a company has been organized to operate in the field. It is declared that within the next 60 days a rig will be chugging away in the Moab field. This company will take over 4,000 acres of land on each side of the river.

SHIPPED FIRST OIL.

Mr. Merkins was the first person to take oil out of Oil creek in Pennsylvania and send it to a chemist at Philadelphia. This was in 1857, and two years later the great oil industry started.

On account of the rapid advance the oil industry has made in the past year, the Salt Lake Commercial club has taken a hand to help foster the promotion of this resource. It is the intention of the club to furnish reliable information, and as it is now in communication with nearly all the big oil operators of the state, it should soon be in a position to know definitely conditions as they are.

By far the largest oil field thus far developed in Utah is the San Juan in San Juan county, near Bluff in the extreme southeastern part of the state. The development in this field alone is sufficient to compel recognition for Utah as an oil state. On Dec. 1 there were 25 rigs in the field and at least 20 were in active operation; the others being broken or being removed to some other portion of the field. In this field alone over 100 men are employed. Four more rigs are now on the way into the field.

In this field is the first paying oil well in the state, although there are many others there that could be made commercial wells if they were properly taken care of. The honor of putting in the first commercial well in Utah belongs to F. V. Bodfish, now of Salt Lake City.

EAR MARKS OF FIELD.

The San Juan oil fields have all the ear marks of being one of the greatest oil fields in the world. Oil indications have been found sufficient for a discovery in the northern end of the field, while in the extreme southern end of the field the greatest discoveries have been made. Oil in quantity has also been found in the east and west edges of the field and there is a strong probability of the field being extended for 10 miles west into Grand gulch.

With the opening up of a new industry in a state new questions arise. Thus it is with the oil business in Utah. Inexperience has caused the spoiling of many a well, only two wells have been shot and, although it is a violation of the law, in many instances the water has not been cased off in the wells.

Oil in Utah is of an exceptionally high grade, running from 38 to 40 specific gravity. The seeps and where oil has been actually discovered, all show a pure paraffine oil and in case of the San Juan oil there is 15 per cent gasoline and 30 per cent kerosene.

All the oil fields that are now being developed in the state are to the south of Salt Lake City, and in a little known part of the state. There is promise that within the next year there will be enough oil developed in the state to justify a pipe line.